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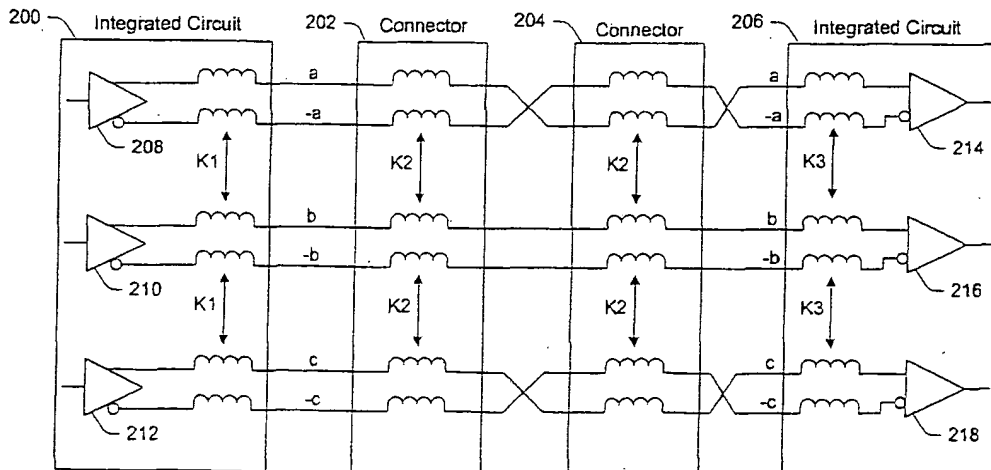
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(54) Title: METHOD AND APPARATUS FOR TRANSMITTING DATA WITH REDUCED COUPLING NOISE



(57) Abstract: A first integrated circuit is coupled to a first connector. A second connector is coupled to the first connector through multiple conductors, in which alternating pairs of conductors are reversed. A second integrated circuit is coupled to the second connector through a second group of conductors. The first integrated circuit includes multiple differential drivers and the second integrated circuit includes multiple differential receivers. The inductive coupling coefficient of the first device is modified to be substantially the same as the inductive coupling coefficient of the second device.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L H05K H04B H01R H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94 05092 A (BRITISH TELECOMM ; ODLEY RICHARD (GB); HUNT TIM (GB)) 3 March 1994 (1994-03-03) abstract column 2, line 8 - line 11 column 4, line 3 - line 11 column 4, line 36 - line 39 column 5, line 1 - line 5 figure 1	1-6, 8-12, 14-20, 26-30 7, 13, 21-25, 31-35
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 057 743 A (AEKINS ROBERT A) 2 May 2000 (2000-05-02)	1-6, 8-12, 14-20, 26-30
A	page 4, line 17 - line 29 page 7, line 28 - page 8, line 2 page 10, line 1 - line 11 figures 4A, 5, 6	7, 13, 21-25, 31-35
X	EP 0 558 225 A (AMERICAN TELEPHONE & TELEGRAPH) 1 September 1993 (1993-09-01)	1-6, 8-12, 14-20, 26-30
A	column 3, line 36 - line 45 column 2, line 5 - line 12 column 5, line 15 - line 19 column 8, line 20 - line 23 figure 10	7, 13, 21-25, 31-35
A	US 5 471 010 A (BOCKELMAN DAVID E ET AL) 28 November 1995 (1995-11-28)	1-6, 8-12, 14-20, 26-30
	column 1, last paragraph column 2, line 58 - line 62 column 3, line 18 - line 29 figure 7	

INTERNATIONAL SEARCH REPORT

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9405092	A	03-03-1994	AU 4969093 A	15-03-1994
			WO 9405092 A1	03-03-1994
			GB 2284511 A , B	07-06-1995
US 6057743	A	02-05-2000	GB 2341734 A	22-03-2000
EP 0558225	A	01-09-1993	US 5186647 A	16-02-1993
			AU 651028 B2	07-07-1994
			AU 3296093 A	02-09-1993
			CA 2085270 A1	25-08-1993
			DE 69306012 D1	02-01-1997
			DE 69306012 T2	13-03-1997
			EP 0558225 A1	01-09-1993
			HK 42597 A	11-04-1997
			JP 6084562 A	25-03-1994
			KR 9701947 B1	19-02-1997
			SG 43175 A1	17-10-1997
US 5471010	A	28-11-1995	US 5459284 A	17-10-1995